



# **Sauget Area 1 & 2: The Need to Finalize the Sites to the NPL**

# Overview

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- ◆ Saugest Sites Background / History
- ◆ What's NPL eligible?
- ◆ How the Saugest Sites meet current guidance and NACEPT recommendations for listing
- ◆ Why Region 5 and IEPA want Sites Finalized
- ◆ Listing Options
- ◆ Risks noted by HQ / Region 5 response
- ◆ Region 5 Recommendation





# Area 1

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- ◆ Site is on the Mississippi River floodplain
- ◆ Eastern side of river, directly opposite St. Louis, MO
- ◆ Borders an impoverished community, East St. Louis, IL

Area 1 subdivided into 12 contaminant sources:

- ◆ Sites G, H, I, L, M, N
- ◆ Dead Creek Segments: A, B, C, D, E, F (3.5 miles)
- ◆ Site G: landfill (1950 -1973)
- ◆ Sites H & I: landfill (1931 - 1957)
- ◆ Site L: surface impoundment (1971 – 1979)
- ◆ Sites M & N: borrow pits used for dumping (since 1940s)
- ◆ Dead Creek: used as a surface impoundment and sewer (since 1930s)



## Area 2

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### 4 landfills

- Site Q (municipal and hazardous wastes, 1966-1973)
- Site R (chemical waste, 1957 - 1977)
- Site S (still-bottom waste, 1970s)
- Site P (chemical waste, 1970s)

4 sludge dewatering lagoons (1950s – 1980s)

# History

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- ◆ The Sauget Sites received massive amounts of hazardous wastes for several decades starting in the 1920s and ending in the 1970s
- ◆ IEPA began investigating the Sites in 1971
- ◆ IEPA made some progress but the PRPs refused to enter into a Consent Decree with the State, at which time IEPA solicited EPA's help (and use of Superfund authorities)
- ◆ 1995 emergency response by EPA at Area 1 – Site G due to underground fire
- ◆ 1995 emergency response by EPA at Area 2 – Site R to prevent erosion into Mississippi
- ◆ 1995 emergency response by EPA at Area 2 – Site Q to remove exposed drums in riverbank
- ◆ 1996 IEPA sent governor's letter for listing Sauget



# History

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- ◆ Area 1 proposal to NPL in 1996
- ◆ 1999 EPA entered into AOC with PRPs for an RI/FS and EE/CA at Area 1
- ◆ 1999/2000 EPA emergency response action at Area 2 – Site Q to remove newly exposed drums
- ◆ 1999 Governor's letter received to support a listing for Area 2
- ◆ 2000 EPA issued UAO for emergency removal of contaminated sediments in and around Area 1 - Dead Creek (due to current exposure to children and continuing source to Mississippi)
- ◆ 2000 EPA entered an AOC with PRPs requiring RI/FS at Area 2
- ◆ 2001 EPA requested that PRPs conduct an FFS for Area 2 – Site R
- ◆ Area 1 Reproposed in 2001 (along with Proposal for Area 2)
- ◆ EPA received confirmation from IEPA that the governor will still support the listing of Sauget Sites
- ◆ 2003 UAO issued to PRPs for Area 2 – Site R to install an interim action to abate the release of contaminated groundwater into the Mississippi River
- ◆ 2003 UAO additional work provision invoked to address DNAPL contamination at Area 1

# What's NPL eligible?

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EPA guidance (OSWER Directive 9203.1-06, 1992) specifies that a high priority be given to Sites that meet the following:

- Current Human Exposure to hazardous substances ✓
- Documented contamination above health-based benchmarks ✓
- Sites near a large potentially affected human population ✓
- Documented contamination of a sensitive environment or fishery ✓
- State wants the Sites listed ✓
- ATSDR issued any health advisories related to the Sites ✓
- Long-term remedial response actions needed, but not immediately life-threatening ✓
- HRS  $\geq 28.5$  ? ✓



# What's NPL eligible?

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The NACEPT committee's recommendations did not differ from EPA's guidance. Though it made some suggestions to supplement EPA's policy:

- ◆ consistent use of factors
- ◆ transparency & communication
- ◆ environmental justice considerations
- ◆ use of other programs

## Basis for Listing Area 1 & 2: **current human exposure to hazardous substances**

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Area 1 – Site G airborne exposures to nearby residents, trespassers, workers  
by volatilization and fugitive dust generation

Area 2 - workers & trespassers complete airborne pathway (ATSDR health advisories issued to prevent on-going exposures) –  
volatilization and fugitive dust generation

Current RI work evaluating vapor intrusion pathways at both Area 1 & 2  
due to extensive DNAPL contamination close to surface.



Basis for Listing Area 1 & 2: documented contamination above health-based benchmarks (includes sediment, soil, groundwater)

Site	Soil (ppm)	Groundwater (ppm)
R	VOCs 5800 SVOCs 19000 Pesticides 99 PCBs 4800	VOCs 38 SVOCs 2974
Q	PCBs 16000 Dioxin .003 Lead 195000 Mercury 4.9	Phenol 190 4-Chloroaniline 15
S	Toluene 990	
O	PCBs 1872	Lead 6.35
I	PCBs 343 4,4 DDT 30 Dichlorobenzene 1837	Chlorobenzene 3
G	PCBs 5300	

## Basis for Listing Area 1 & 2: proximity to a large potentially affected human population

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- ◆ Old Prairie duPont Creek, the Cahokia Chute, and the Mississippi River are used for recreational and commercial fishing
- ◆ A portion of the Mississippi River within the area of observed contamination is fished for carp, catfish & others for human consumption
- ◆ Sites are adjacent to East St. Louis, an impoverished community
- ◆ The population within 1 mile of the Sites is about 9,000, including 711 children less than 5 years of age and 2,185 between 5 - 17 years of age



## Basis for Listing Area 1 & 2: documented contamination of a sensitive environment or fishery

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- Source area hazardous substances have been documented in wetlands adjacent to Sites
- State endangered species, including Black-Crowned Night Heron, documented in the wetland adjacent to Area 1
- Six threatened and endangered species, including the federally threatened bald eagle & State endangered snowy egret and little blue heron use habitat within Site area
- Over 11 miles of wetland frontage are subjected to actual and potential contamination
- Old Prairie DuPont Creek, Cahokia Chute, and Mississippi River, adjacent to Sites are used for recreational and commercial fishing (area of observed contamination documented to be fished for carp and catfish for human consumption)
- Recent sampling documents PCBs and dioxin in the Mississippi River sediments

## **Basis for Listing Area 1 & 2: State wants the Sites listed on the NPL**

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- ◆ State obtained governor's letter in support of listing in 1996 for Area 1 and 1999 for Area 2.
- ◆ 2001 State issued a letter reaffirming their support to list the Sites.
- ◆ IEPA has been investigating the Sites since 1971 and have spent over \$1,000,000.
- ◆ The cleanups accomplished have only addressed immediate health risks. Extensive contamination exists in soil, residual sediment, and groundwater in both Areas 1 & 2.
- ◆ State is a Trustee and has NRDA concerns. Without a listing, the SOL has expired.



## **Basis for Listing Area 1 & 2: ATSDR has issued health advisories**

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- ◆ Advisories for Area 1 & 2 were issued by ATSDR for on-site workers and trespassers.
- ◆ Advisories for trespassers and children were issued for Dead Creek (ATSDR recommendation for removal action was implemented).
- ◆ Area 1 (Site G) volatilization and fugitive dust to nearby residents and workers (airborne exposure)
- ◆ Due to proximity, employees of the American Bottoms Regional Waste Water Treatment Plant are likely to be exposed to Area 2-related contaminants, particularly from Site S. Past and future exposures might occur to workers sampling or monitoring the sites, and to workers excavating or disturbing the contaminated areas.

Basis for Listing Area 1: Long-term remedial response actions are needed for serious, but not immediately life-threatening contamination

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Additional source areas remain along Dead Creek including sites H, I, L, M, and N with drums, oily sludges, chemical warfare wastes, PCB waste oils

Area 1 has one of the largest volumes of DNAPL-contaminated soil in the United States (1,700,000 cubic yards)

Area 1 vapor intrusion pathway currently under evaluation

Area 1 groundwater plume of chlorobenzene and 1,4-dichlorobenzene extends more than 1 mile from the sources, mixes with the Area 2 plume and discharges to the Mississippi River at concentrations of about 10,000 ug/l. Plume also contains PCBs, pesticides, metals, dioxin, and SVOCs including p-chloroaniline.



Basis for Listing Area 2: Long-term remedial response actions are needed for serious, but not immediately life-threatening contamination

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EPA initiated a CERCLA time-critical removal during which over 3,271 drums of waste and hazardous materials and approximately 15,000 tons of contaminated soil were removed from Site Q. The removal could not address all the contamination. Additional source areas remain (O, P, Q, R, S) – source areas are saturated within the water table.

Massive co-mingled groundwater contamination (DNAPL) –  
609,840,000 cubic feet

Site R slurry wall and wells control only a portion of the plume

Landfills and surface impoundments are unlined: all received massive amounts of hazardous waste from the 1920s through the 1970s.

Removal work has addressed immediate threats but long-term response actions are needed.

Area 2 DNAPL volatilization pathway under evaluation

# Area 1 Summary

Source	Use	Size	Contaminants	Early Actions	Long-Term Actions
G	Unlined Landfill	4.3 acres 140,000 cubic yards	Benzene, PCBs, metals, pesticides, PAHs, chlorinated compounds, dioxin	Emergency removal action following an underground fire in 1995. Soil cover and consolidation (EPA)	RI/FS AOC
H	Unlined Landfill	5.2 acres 170,000 cubic yards	See above, also dioxin		RI/FS AOC
I	Sauget-Monsanto Unlined Landfill (1931 – 1957)	19 acres 680,000 cubic yards	See above, Also dioxin		RI/FS AOC
L	Two unlined surface impoundments (1975 – 1981)	1.1 acres 18,000 cubic yards	See above, also dioxin		RI/FS AOC
M & N	Borrow pits (1940s – 1980s)		See above		RI/FS AOC
Dead Creek	Contaminated sediments	3.5 miles	See above	IEPA CD Segment A - 22,000 cy removed; 50,000 cy removed via EPA UAO plus liner.	RI/FS AOC



# Area 2 Summary

Source	Use	Fill Volume Cubic yards	Early Actions	Long-Term Actions
O	4 sludge dewatering lagoons Village of Sauget POTW	690,000		AOC RI/FS
P	Hazardous Waste Landfill	630,000		AOC RI/FS
Q	Municipal & Hazardous Waste Landfill	4,000,000	Exposed drums removed (1995 & 2000)	AOC RI/FS
R	Hazardous Waste Landfill	880,000	Erosion control into Mississippi River UAO for slurry wall along riverbank & extraction wells	AOC RI/FS FFS for groundwater contamination
S		11,000		AOC RI/FS

# Why Finalize?

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- Dead Creek has been addressed but massive amounts of groundwater contamination in Area 1 remain, along with all the sources.
- Groundwater discharges into the Mississippi and contains co-mingled contaminants from both Areas and all of the sources
- The PRPs have only agreed to perform investigation work and some removal work --- not remedial action work.



# Why Finalize?

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- While incremental progress has been made, the PRPs are using the bankruptcy and the lack of listing finalization to delay addressing the long-term threats
- EPA will not be able to compel the PRPs, anymore than the State was, to implement necessary long-term actions should Area 1 and Area 2 not be finalized to the NPL
- EPA will only be able to compel the PRPs to complete studies, not actual remedial action under the current Orders
- EPA Region 5 wants the threat of accessing the fund to ensure that the PRPs will implement the necessary long-term cleanup work necessary at Areas 1 and 2
- The Area 1 1996 proposal, 2001 reproposal, and Area 2 2001 proposal were legitimate and the Agency had the foundation to list the Sites

# Why finalize?

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- The Solutia Bankruptcy has created legally legitimate cost and work conflicts between the parties impairing progress on the Sites. Listing will enhance our enforcement capabilities with regard to the outcome of the Bankruptcy
- The Agency utilized guidance from the Superfund Reforms and we started cleanup early to reduce the worst risks first thus removing contamination from Area 1 – Dead Creek (PRPs took the lead) and Area 2 – Site Q (EPA took the lead). If we don't follow through on the listing, the PRPs will write guidance that performance of removal actions and eliminating current exposure pathways will obfuscate the listing process and they will not have to deal with long-term threats.
- If these Sites are not listed, remedial actions may never be implemented and EPA will not be able to recover expended costs concerning the listings.
- Without a final listing, PRPs that have expended funds on the RI/FS and removals will not be able to get contribution from other PRPs (Avial)
- Statute of Limitations for NRDA is over. With a listing, the SOL clock can re-start. Our sister Agencies and the State are very concerned about NRDA issues.



# Why Finalize - Summary

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According to the NACEPT report, the NPL should represent those sites that meet eligibility criteria and are judged to need the expertise and resources only Superfund can provide.

- ◆ Both Sites meet the criteria
- ◆ Both Sites were evaluated in a very open and transparent manner
- ◆ The proposal was a strong enforcement incentive to get as far as we have – not following through on listing can compromise our enforcement stance. PRPs will get the message to just do enough to eliminate current immediate risks and then walk away from the long-term risks.
- ◆ In conducting the work, EPA has used a multi-media approach and brought in other authorities where possible (State program and RCRA). Superfund is being utilized, and supplemented, as recommended in the NACEPT Report.

# Why Finalize - Summary

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- ◆ If we don't follow through on the listing, the PRP community will know that performance of removal actions and eliminating current exposure pathways will obfuscate the listing process and they will not have to deal with long-term threats.
- ◆ If these particular Sites are not listed, remedial actions may never be implemented and EPA will not be able to recover expended costs concerning the listings.
- ◆ Without a final listing, PRPs that have expended funds on the RI/FS and removals will not be able to get contribution from other PRPs (Avial)
- ◆ Statute of Limitations for NRDA is over. With a listing, the SOL clock can re-start. Our sister Agencies and the State are very concerned about NRDA issues.



# Available Options

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- ◆ Finalize the listing for both Area 1 and Area 2
- ◆ Finalize the listing for Area 2 and attempt SAS program for Area 1

# Options

Listing Option	Advantages	Disadvantages
Finalize Area 2 and Attempt SAS for Area 1	<ul style="list-style-type: none"> <li>◆ Less litigation risk due to issues with Area 1's Dead Creek</li> <li>◆ May be able to address area-wide groundwater contamination by bringing in Area 1 PRPs, Krummrich Plant (RCRA) and Phillips Petroleum (SRP)</li> <li>◆ Ability to access fund for Area 2 and through groundwater mixed plume, for Area 1 groundwater</li> </ul>	<ul style="list-style-type: none"> <li>◆ Area 1 source long-term threats may never be addressed</li> <li>◆ Message to PRPs is to only implement partial actions to obfuscate listings</li> <li>◆ Area 1 continuing sources to mixed plume will create obstacles for any future gw remedies at Area 2 (Area 1 is largest contributor to the mixed plume)</li> <li>◆ NRDA claim will be limited to Area 2</li> <li>◆ Greater burden on smaller PRPs (because most contamination is from the larger Area 1 PRPs)</li> <li>◆ Relations with State will be impaired</li> </ul>
Finalize Area 1 & 2	<ul style="list-style-type: none"> <li>◆ All sources will be addressed</li> <li>◆ NRDA claim will include Area 1 and 2</li> <li>◆ Demonstration of one cleanup program – multimedia approach success (Superfund, RCRA, State Voluntary Program).</li> <li>◆ Ability to access fund to create the enforcement hammer, and if necessary, implement necessary work.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Litigation risk due to removal of contaminants from Dead Creek</li> </ul>



## HQ noted Vulnerabilities

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Need for additional actions: massive amounts of contamination exist including on-going sources to the Mississippi and possible exposure routes to humans through the air pathway.

# HQ noted Vulnerabilities

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Aggregation: Based on previous court rulings, this remains a risk, especially to Area 1.

As discussed in the NACEPT report, if the releases are inextricably intertwined and cleanup can be accomplished more efficiently and effectively by creating one Site rather than many discrete units, then the Agency should use its discretion and create one Site.

Extensive groundwater contamination is a co-mingled plume from the multiple sources with the same contaminants caused by dumping practices by the various companies within the created industrial "TSDF" created by these companies. All of the discrete sources were enveloped into one City, Sauget so enveloping all of these sources into one Site is consistent with what the PRPs did when they created the City of Monsanto, now known as the City of Sauget.



# HQ noted Vulnerabilities

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- ◆ Sampling and data quality: The PRPs are challenging their own data. In 1996, they challenged the State's data and in 2001, they are challenging their own data.
- ◆ Other potential sources: There may be other sources that are contributing which will be discovered through the RI/FS and the Agency would bring in more PRPs. But, should the Sites not get listed, then due to Avial, the PRPs won't be able to bring them in for contribution.
- ◆ State Support: The State supports proceeding at this time.
- ◆ Overall Risk: We agree that there are litigation risks. However, long-term health risks will never be addressed without listing -- it is unlikely that we'll be able to compel the PRPs to implement necessary remedial actions. The enforcement hammer of the fund and treble damages won't exist.

# Recommendation

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Finalize Listing for Area 1 & 2